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### ► IBM PowerNP network processor: Hardware, software, and applications

JR Allen, BM Bass, C Basso, RH Boivie, JL ... - IBM Journal of research and development, 2003 - research.ibm.com

... networking applications interface with the **data plane** functions using ... IP router, such as **routing table** lookup and ... **Table 1** summarizes the PowerNP cycle budgets ...

Cited by 50 - [Related articles](#) - [Cached](#) - [Web Search](#) - [BL Direct](#) - [All 7 versions](#)

### Customizable virtual private network service with QoS- ►rice.edu (pdf)

L Keng Lim, J Gao, TS Eugene Ng, PR Chandra, P ... - Computer Networks, 2001 - Elsevier

... 3. In the **data plane**, each VPNis allocated its own resources such as link bandwidth and a **forwarding table**. ... we can create the initial **routing table** setup and ...

Cited by 29 - [Related articles](#) - [Web Search](#) - [All 17 versions](#)

### Creating advanced functions on network processors: Experience and perspectives-

►ibm.com (pdf)

R Haas, L Kendl, A Kind, B Metzler, R Pletka, M ... - IEEE network, 2003 - ieeexplore.ieee.org

... In the **data plane**, TE nodes perform traffic classification, policing, shaping, marking ...

LRM User Netlink API Kernel IP **routing table** Kernel ... IP **forwarding table** ...

Cited by 17 - [Related articles](#) - [Web Search](#) - [BL Direct](#) - [All 22 versions](#)

### A terabit IP switch router using optoelectronic technology

HJ Chao - Journal of High Speed Networks, 1999 - IOS Press

... parsing of the IP header, **routing table** lookup, and ... distributing the IP unicast/multicast **forwarding table** (also called ... the **control plane** and **data plane** ...

Cited by 12 - [Related articles](#) - [Web Search](#) - [BL Direct](#) - [All 3 versions](#)

### Internet multicast routing and transport control protocols

VOK Li, Z Zhang - Proceedings of the IEEE, 2002 - ieeexplore.ieee.org

... by just one entry in the **routing table**, allowing efficient ... will soon have enough high-speed **forwarding table** memory to ... multicast states on the **data plane** 6 in ...

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### Inter-domain routing stability measurement

Y Jiang, A Doria, D Olsson, F Pettersson - High Performance Switching and Routing, 2002. Merging ..., 2002 - ieeexplore.ieee.org

... that the route can be installed in the **forwarding table**. ... BGP control traffic to establish its **routing table**, it is ... is any correlation with the **data plane** effects ...

Cited by 3 - [Related articles](#) - [Web Search](#)

### BANANAS: An evolutionary framework for explicit and multipath routing in the Internet-

►psu.edu (pdf)

HT Kaur, S Kalyanaraman, A Weiss, S Kanwar, A ... - ACM SIGCOMM Computer Communication Review, 2003 - portal.acm.org

... First, a hash-based **data-plane** encod- ing is ... framework: this scheme moves **control-plane** com- plexity ... This section describes the **forwarding table** structure ...

Cited by 41 - [Related articles](#) - [Web Search](#) - [All 8 versions](#)

### [PDF] ► Optical-label switching, MPLS, MPLambdaS, and GMPLS

SJB Yoo - Opt. Netw. Mag, 2003 - sierra.ece.ucdavis.edu

... fabric in the OLSR after looking up the **forwarding table**. ... payload at the core, and

the **data plane** is end ... based on the label content and the **routing table**, and ...

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[PDF] ► [Failure insensitive routing for ensuring service availability](#)

S Nelakuditi, S Lee, Y Yu, ZL Zhang - Lecture notes in computer science, 2003 - cs.umn.edu

... **Data plane** performs switching of packets from incoming interfaces to ... node i under

FIR maintains a **routing table** R ... **forwarding table** F j→i per each neighbor j ...

[Cited by 26](#) - [Related articles](#) - [View as HTML](#) - [Web Search](#) - [BL Direct](#) - [All 12 versions](#)

[PDF] ► [Carrier grade IP](#)

D Hoefkens - Alcatel telecommunications review, 2002 - alcatel.com

... forwarding engine in the **data plane**) and the ... are preserved, and any **forwarding table**

information that ... and changes affecting the **routing table** are continuously ...

[Cited by 1](#) - [Related articles](#) - [View as HTML](#) - [Web Search](#) - [BL Direct](#) - [All 6 versions](#)

[CITATION] [End-to-end contention resolution schemes for an optical packet switching network with enhanced edge ...](#) - ► [cnu.ac.kr](#) [PDF]

F Xue, Z Pan, Y Bansal, J Cao, M Jeon, K Okamoto, ... - Journal of Lightwave Technology, 2003 - OSA

... with the controller to update the **forwarding table** and to ... when a packet travels through

its all-optical **data plane**. ... Preferred **routing table** defines which ...

[Cited by 27](#) - [Related articles](#) - [Web Search](#) - [BL Direct](#) - [All 11 versions](#)

[Resource allocation in virtual routers](#)

Y Wang - US Patent App. 10/084,917, 2002 - Google Patents

Page 1. US 20030169747A1 (19) United States (12) Patent Application Publication

(io> Pub. NO.: US 2003/0169747 AI Wang (43) Pub. Date: Sep. ...

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[Apparatus and method for combining forwarding tables in a distributed architecture router](#)

JC Wybenga, P Samudra, PK Sturm - US Patent App. 10/431,770, 2003 - Google Patents

... the optimal data paths from the **routing table**. ... and MPLS packets and the **data plane**

forwards the ... 3 illustrates exemplary unified **forwarding table** 261 according ...

[Web Search](#) - [All 2 versions](#)

[Robust NP-based data forwarding techniques that tolerate failure of control-based applications](#)

C Basso, N Vaidhyathan, CB Verrilli, RM ... - US Patent App. 09/885,782, 2001 - Google Patents

... between the **control plane** and **data plane** is that of ... maintains a protocol specific

**routing table** 28 including ... restart they purge the **forwarding table** and both ...

[Related articles](#) - [Web Search](#) - [All 4 versions](#)

[System and method for correlating traffic and routing information](#)

CH Labovitz - US Patent App. 10/624,124, 2003 - Google Patents

... node updating its local **forwarding table** with information ... may indicate an instability

in the **routing table**). ... the data collected by **data plane** collector 201 to ...

[Web Search](#) - [All 2 versions](#)

[Distributed and disjoint forwarding and routing system and method](#)

PN Golla - US Patent App. 10/651,134, 2003 - Google Patents

... coordinating the updating of the **forwarding table** information based on the **routing**

**table** information in ... with a set of **data plane** update buffers. ...

[Web Search](#) - [All 4 versions](#)

[Routing scheme based on virtual space representation](#)

GP Saraph - US Patent App. 10/739,655, 2003 - Google Patents

... order to minimize the number of **routing table** entries, the ... technique (from ATM) in

the **data plane** and use ... paths and to create the **forwarding table** entries for ...

[Web Search](#) - [All 7 versions](#)

[BOOK] [Optical networks: architecture and survivability](#)

HT Mouftah, PH Ho - 2002 - books.google.com

... 11 2.7.7 Establishment of Label Switched Paths (LSPs) 72 2.7.2 Packet Forwarding and Label Swapping 73 2.7.3 Summary of the MPLS-based **Control Plane** 75 2.2 ...

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### Concurrent use of communication paths in a multi-path access link to an IP network

GAP Eriksson, M Eriksson, T Jokikynny, J Ylitalo, ... - US Patent App. 10/106,861, 2002 - Google Patents

... AND FEEDBACK ^ NETWORK INTERFACE « 42 **DATA PLANE** L4 FE ... TOWARDS PEER OR SERVER 32 **CONTROL PLANE** PROXY CONTROL ... 11 **ROUTING TABLE** IN L4FE, ROUTE UPLINK ROUTE ...

Related articles - Web Search - All 4 versions

### Methods and apparatus for improved failure recovery of intermediate systems

DJ Tsillas, DY Moy - US Patent App. 10/123,637, 2002 - Google Patents

... embodiment, a **forwarding table** may be generated from the **routing table**. In yet another embodiment, the **forwarding table** may be provided to a **data plane**. ...

Web Search - All 2 versions

### Challenges and opportunities in broadband and wireless communication designs- ►york.ac.uk

[PDF]

JM Rabaey, M Potkonjak, F Koushanfar, SF Li, T ... - IEEE/ACM International Conference on Computer Aided Design, ..., 2000 - ieeexplore.ieee.org

... as processing the routing data, **forwarding table** lookups, access ... and queue management dominate **data plane** applications. ... RTR - Radix tree **routing table** look-up ...

Cited by 23 - Related articles - Web Search - BL Direct - All 27 versions

### [PDF] ► Understanding network processors

N Shah - Master's thesis, University of California, Berkeley, 2001 - www-asim.lip6.fr

... performed within the fabric at wire speed (**data-plane** operations ... This approach is similar to managing a **routing table** – some **control-plane** processing is ...

Cited by 145 - Related articles - Web Search - All 16 versions

### Method to enable routing protocol communication and transit packet forwarding between virtual ...

RP Folkes, LA Visser - US Patent App. 10/196,393, 2002 - Google Patents

... 211-213 through 221-223 in **data plane** 25 that ... and creates entries in its packet **forwarding table** with that ... If a route in the **routing table**, or interchangeably ...

Related articles - Web Search - All 4 versions

### Apparatus and method for performing high-speed lookups in a **routing table**

JC Wybenga, PK Sturm - US Patent App. 10/658,977, 2003 - Google Patents

... module 230 and network processor 260 for **data plane** traffic flow. ... In one embodiment, **routing table** 300 may represent distributed **forwarding table** 261, for ...

Web Search - All 2 versions

### Connectionless internet traffic engineering framework

S Kalyanaraman, HT HT, J Akella, S Raghunath, K ... - US Patent App. 10/361,539, 2003 - Google Patents

... node finds nearest path suffix 10 match stored in its **forwarding table** subtract wt ... algorithm in this model is related to the **control-plane** algorithm because ...

Web Search - All 4 versions

### Transparent, look-up-free packet forwarding method for optimizing global network throughput based on ...

MH Sandstrom - US Patent App. 10/192,118, 2002 - Google Patents

... the case of multiple route, switch and **forwarding table** entries that ... system 1 uses the embedded **control plane** and dynamic POS **data plane** principles ...

Web Search - All 3 versions

### [PDF] ► End-to-End Internet Quality of Service (QoS): An Overview of Issues, Architectures, and Frameworks

R Chakravorty, S Kar, P Farjami - Proc. IEEE ICIT 2000, 2000 - citeseerx.ist.psu.edu

... to increased communication and computation overhead, larger **routing table** size and ... as an index to search through the **forwarding table**. ... **Data Plane Control Plane** ...

[Cited by 3](#) - [Related articles](#) - [Web Search](#) - [All 3 versions](#)

[An optical interconnection network for Terabit IP routers-](#) [poly.edu](#) [pom](#)

HJ Chao, TS Wang - Journal of Lightwave Technology, 2000 - OSA

... than 40 000 routes in its **routing table** [16 ... distributing the IP unicast/multicast **forwarding table** (also called ... separate the **control plane** and **data plane** or let ...

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[Apparatus and method for implementing VLAN bridging and a VPN in a distributed architecture router](#)

JC Wybenga, PK Sturm - US Patent App. 10/460,995, 2003 - Google Patents

... the optimal data paths from the **routing table**. ... and network processor 260 for **data plane** traffic flow. ... processor 260 uses distributed **forwarding table** (DFT) 261 ...

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[\[PDF\] High-performance optical-label switching packet routers and smart edge routers for the next- ...](#)

SJB Yoo, F Xue, Y Bansal, J Taylor, Z Pan, J Cao, ... - IEEE Journal on Selected Areas in Communications, 2003 - [cnu.ac.kr](#)

... electrical-optical (O/E/O) conversion in the **data plane**. ... RT[i][j] ) and deflection **routing table** ( DEF[i] ... each LP\_TI and perform the **forwarding table** lookup and ...

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[\[PDF\] of Deliverable: D2. 2.4: Final IPv4 to IPv6 Transition Cookbook for](#)

T Chown - network, 2002 - [6diss.org](#)

Page 1. IST-2000-32603 Deliverable D 2.2.4 Project Number: IST-2001-32603 Project

Title: 6NET CEC Deliverable Number: 32603/UOS/DS/2.2.4/A1 ...

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[\[PDF\] Hardware architecture for protocol processing](#)

T Henriksson - 2001 - [citeseerx.ist.psu.edu](#)

... The **data plane** consists of the performance demanding and ... The **control plane** consists of all other activities ... so fast handling, although **routing table** updates may ...

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[\[PDF\] DiffServ-aware-MPLS Networking: a Promising Traffic Engineering for Next Generation Internet \(NGI\)](#)

Y Kim - Tutorial at The 6th Asia-Pacific Network Operations and ..., 2002 - [apnoms.org](#)

... 8 MPLS LSR (Label Switching Router) **Data Plane** in a node ... Incoming Labeled Packets IP/Label **forwarding table** updates ... IP **Routing Table** IP Routing Protocol ...

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[\[BOOK\] MPLS and VPN architectures](#)

J Guichard, I Pepelnjak - 2000 - [books.google.com](#)

... Internet Access Using the Global **Routing Table** 262 Firewall ... **Control Plane** Operation 425 Provider **Control Plane** Operation 426 **Data Plane** Operation 426 ...

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[\[PDF\] BANANAS: A New Connectionless Traffic Engineering Framework for the Internet](#)

S Kalyanaraman, HT Kaur, S Raghunath, J Akella, H ... - Submitted for Publication, 2002 - [citeseerx.ist.psu.edu](#)

... the introduction of new TE capabilities by modifying the **control plane** alone. ... tination prex can be condensed as a list of **forwarding table** entries (destination ...

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[\[PDF\] Mechanisms for OAM on MPLS in large IP backbone networks](#)

H Lohne, J Vea, Hi Agder - 2002 - [student.gm.hia.no](#)

Page 1. Mechanisms for OAM on MPLS in large IP backbone networks Masters Thesis, Information and Communication Technology Agder University ...

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[PDF] ► [Management of routing protocols in IP networks](#)

A Shaikh - 2003 - [citeseerx.ist.psu.edu](#)

... 105 5.11 **Control-plane** diagram for LAN 1 under different roles played ... necessary instrumentation to measure certain tasks (eg, updates to the **forwarding table**) ...

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[PDF] ► [Evaluation of Voice over MPLS \(VoMPLS\) compared to Voice over IP \(VoIP\)](#)

EB Fjellskål, S Solberg, H Agder - 2002 - [student.grm.hia.no](#)

... The router finds the correct next hop by consulting its **forwarding table**. The **forwarding table** is conceptually just a list of <NetworkNum, NextHop> pairs. ...

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[Optical switching: switch fabrics, techniques, and architectures-](#) ► [columbia.edu](#) [PDF]

GI Papadimitriou, C Papazoglou, AS Pomportsis, I ... - Journal of Lightwave Technology, 2003 - OSA

Page 1. 384 JOURNAL OF LIGHTWAVE TECHNOLOGY, VOL. 21, NO. 2, FEBRUARY 2003 Optical Switching: Switch Fabrics, Techniques, and Architectures ...

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[Method and apparatus for composing virtual links in a label switched network](#)

T Kanetake - US Patent App. 10/052,684, 2002 - Google Patents

... a forwarding component (also called the **data plane**) 50 and a ... with respect to the label **forwarding table** will be ... 52 also uses an IP **routing table** to conduct the ...

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T Sridhar - 2003 - [books.google.com](#)

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M van der Zee, A Yaiz, GJ Heijenk - 1999 - [eprints.eemcs.utwente.nl](#)

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(also subject responsible if other) Nr - No. Martin ...

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[BOOK] [Rick Gallaher's MPLS Training Guide: Building Multi Protocol Label Switching Networks](#)

R Gallaher - 2003 - [books.google.com](#)

... 127 Introduction 128 MPXS and GMPLS 128 Where Networking Is Today 129 Where Networking Is Going 130 The Birth of GMPLS 131 The GMPLS **Control Plane** 133 Neighbor ...

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[Data processing architectures](#)

J Rhoades, K Cameron, P Winsor, R McConnell, G ... - US Patent App. 10/073,948, 2002 - Google Patents

Page 1. US 20030041163A1 (19) United States (12) Patent Application Publication

(io> Pub. NO.: US 2003/0041163 AI Rhoades et al. (43) Pub. Date: Feb. ...

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[PDF] ► [An MPLS-based Quality of Service Architecture for Heterogeneous Networks](#)

S Raghavan - 2001 - [citeseerx.ist.psu.edu](#)

... algorithms, is responsible for the construction and maintenance of the **forwarding table**. ... information is used as an index into a **routing table** that specifies ...

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[BOOK] [Deploying and managing IP over WDM networks](#)

J Serrat, A Galis - 2003 - [books.google.com](#)

... IP Over WDM—The **Data Plane** Perspective IP Over A TM Over SDH for WDM ... **Control Plane** Integration MPLambdaS-Generalized MPLS The ASON/ASTN Framework The OIF Forum ...

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[PDF] [► Algorithms for routing lookups and packet classification](#)

P Gupta - 2000 - yuba.stanford.edu

... of different **routing table** update ... An example **forwarding table**..... ...

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[PDF] [► Efficient provisioning algorithms for network resource virtualization with QoS guarantees](#)

K Gopalan, TC Chiueh - 2003 - citeseerx.ist.psu.edu

... Thus each VON can have its own virtual topology, **control-plane** (such as its routing protocols), and **data plane** (such as traffic processing and forwarding). ...

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V Rexhepi - 2000 - doc.utwente.nl

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PM Fernandez - 2003 - citeseerx.ist.psu.edu

... **routing table**, to set up the parameters in the QoS scheduler ... packet switching, a slowdown in the **control plane** does not directly affect the **data plane**, as ...

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[Interoperability of Integrated Services and Differentiated Services Architectures- ► utwente.nl](#)

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AP Kucheria - 1998 - ittc.ku.edu

... 3.2 Virtual **routing table** for virtual router . ... without compromising on the **data plane** results. ... **table** to forward the packet toward it's ultimate destination. ...

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